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**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Implement the
Commission's Procurement Incentive Framework
and to Examine the Integration of Greenhouse Gas
Emissions Standards into Procurement Policies.

Rulemaking 06-04-009
(Filed April 13, 2006)

BEFORE THE CALIFORNIA ENERGY COMMISSION

Order Instituting Informational Proceeding AB-32
Implementation: Greenhouse Gases

Docket 07-OIIP-01

**COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 M) AND
SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) ON ADMINISTRATIVE LAW
JUDGE'S RULING REQUESTING COMMENTS ON MODELING-RELATED ISSUES**

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January 4, 2008

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**I.
INTRODUCTION AND BACKGROUND**

In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (the "Commission") and the *Administrative Law Judge's Ruling Requesting Comments on Modeling-Related Issues* (the "ALJ Ruling"), dated November 9, 2007, San Diego Gas & Electric Company ("SDG&E") and Southern California Gas Company ("SoCalGas") hereby submit the following responses to the questions posed by the ALJ Ruling.^{1/}

The ALJ Ruling requests comments on the Energy and Environmental Economics, Inc. ("E3") modeling methodology, a California Public Utilities Commission ("Public Utilities Commission") Staff workpaper on available emission reduction measures, and any overall comments that parties may have on E3's model. Parties are requested to provide comments on

^{1/} Ruling by ALJ's TerKeurst and Lakritz available at <http://docs.cpuc.ca.gov/efile/RULINGS/75041.pdf>.

all issues related to modeling work developed so far.^{2/} The Ruling includes a set of specific questions to guide feedback and to assist parties in preparing comments on the content of the attachments to this ruling.^{3/} Parties may, but are not required to, respond to some or all of these questions.^{4/}

II. COMMENTS TO QUESTIONS

Questions Related to Attachment A, Identification of Emission Reduction Measures

Q1. Does Attachment A cover all of the viable emissions reduction measures available in the electricity and natural gas sectors? If not, what other measures should be considered for the purposes of forecasting emissions reduction potential within these sectors? Please include suggested data sources and references for information regarding any additional measure you purpose.

Response: Attachment A, “Greenhouse Gas Emissions Reductions Measures for the Electric and Natural Gas Sectors Under Consideration as Part of R.06-04-009,” identifies many technological areas that have the potential to make GHG-reduction contributions. Specifically, Attachment A contemplates developing renewable power as well as resources that, while not renewable, offer low or zero carbon emissions and expanding energy efficiency. SDG&E and SoCalGas have also proposed some specific measures that could further those goals in their Climate Action Initiative, filed August 31, 2007 (A.07-08-031), and which should be adopted.

One omission from the list is the early termination of contracts with and/or early plant closures of high emitting, aging coal plants. But the full array of viable emissions reduction measures available in the electricity and natural gas sectors is not currently known. Adoption of a market-based cap and trade program to all industry sectors where feasible (e.g. for point sources of sufficient magnitude to warrant to the costs of regulation in this manner), designed

^{2/} *Id.* at p. 1.

^{3/} *Id.* at p. 5.

^{4/} *Id.*

with a MWh output-based cap and allowance allocation and a provision for the use of offsets, would maximize incentives to identify and implement the least-cost means of reducing emissions both within, and outside, of the natural gas and electricity industry sectors.

Q2. Are there emission reduction measures identified within Attachment A that you believe, based on currently available information, should not be implemented as a means to achieving emission reductions within the context of AB 32? Please justify your answer.

Response: All of the identified measures offer the potential for cost effective emission reductions. Many of these (such as additional energy efficiency), would be particularly effective for point sources that are not of sufficient size to warrant inclusion in an emissions cap and trade program. For these market segments, programmatic measures are likely to be the most cost effective.

For some of the potential measures in Attachment A, SDG&E and SoCalGas have already made specific proposals. Specifically, measures to target energy efficiency programs toward GHG reduction, to increase CHP penetration, to increase the supply of renewables as well as low-carbon non-renewable resources, and to promote biomethane use have been proposed by SDG&E and SoCalGas in A.07-08-031, and believe they warrant inclusion in this discussion.

As mentioned above, the full array of viable emissions reduction measures available in the electricity and natural gas sectors is not currently known. Adoption of a market-based cap and trade program to all industry sectors where feasible (e.g. for point sources of sufficient magnitude to warrant the costs of regulation in this manner), as described above, would maximize incentives to identify and implement the least-cost means of reducing emissions both within, and outside, of the natural gas and electricity industry sectors.

Q3. What means beyond policies currently adopted by the two Commissions hold potential for the delivery of additional energy efficiency?

Response: There are both policy and program actions that can be taken to increase the potential for delivering additional energy efficiency. Our recommendations are as follows:

Policy Changes:

- Allow cogeneration developed pursuant to AB 1613 to come under the energy efficiency umbrella. This change would create synergies with energy efficiency on-bill financing thus increasing the potential for high efficiency generation at facilities with substantial opportunities to utilize waste heat. [more like a renewable resource]
- Broaden the role of the utility as an energy efficiency service provider. For example, allowing utility investment alternatives in major energy systems at customer facilities (such as, central plants, cogeneration, etc.) would help overcome potential credit constraints and overly high discount rates. This could reduce lost opportunities to maximize energy efficiency on these long life projects (20 or more years).
- Modify the policy guidelines on cost effectiveness to facilitate broader market penetration of energy efficient technologies. Specifically, modify the net-to-gross ratio in the cost-effectiveness calculations for energy efficiency. This factor is a measure of the extent to which customers would adopt the EE measure if there were no EE programs. It is an acknowledged unreliable guess regarding customer behavior, and it currently restricts the size and scope of efficiency opportunities. Removing this factor or reducing it has the potential to increase the number of cost-effective energy efficiency measures by a large margin. In some cases, it would also enable the development of programs designed to reach the large segment of late adopters of energy efficiency.
- Implementation of energy efficiency efforts by municipal utilities that are equivalent to those implemented by IOUs.

Program Changes:

- Implement tax based incentives to encourage participation by certain market decision-makers that do not directly benefit from increased energy efficiency. For example, commercial building operators that must invest in energy systems but do not see the benefits of lower energy costs, as they are passed on to their tenants. Or new home builders/remodelers who make decisions on appliances, but receive no energy bill savings since the benefits accrue to the home buyer.

Q4. What means beyond policies currently adopted by the two Commissions hold potential for the integration of additional renewable resources into the grid?

Response: The two Commissions should support transmission projects that enable more access to wind, geothermal and solar resources.

SDG&E also recommends greater efforts targeted towards modernization of the distribution and transmission grid particularly to interconnect distributed renewable resources. The mandates of both Commissions can encourage a greater number of projects that demonstrate smart grid components and interoperability of grid connected devices. In addition, more public outreach programs are necessary to increase the awareness around essential grid enhancements. Policy and mandates around deployment of smart grid technologies, which are commercially ready, will also help in achieving an accelerated integration of distributed renewables.

Q5. How might an emissions reduction strategy within the electricity sector be targeted to displace the most carbon intensive aspects of California's electricity resource mix?

Response: In 2020, SDG&E will have no electricity produced from the most carbon intensive aspects of California's electricity resource mix, electricity from aging coal plants. Actions specifically targeted to electricity from these plants may include early termination of contracts, repowering plants to use natural gas, early plant closure, or carbon sequestration. The full array of viable emissions reduction measures available in the electricity sector is not currently known. Adoption of a market-based cap and trade program designed with an MWh output-based cap and allowance allocation (equal GHG emissions per MWh) and a provision for offsets, would maximize incentives to identify and implement the least-cost means of reducing emissions both within, and outside, of the electricity industry sector. In short, this would maximize incentives for these highest emitting resources to reduce emissions in the cost effective manner.

Questions Related to Attachment B, Modeling Approach and Data Sources

Q6. Does E3's modeling documentation adequately document the methodology, inputs, and other assumptions underlying its model? If not, what additional documentation should be added?

Response: E3 should be commended for the effort they put into documenting the model. At this time SDG&E and SoCalGas can not say that all of their questions can be answered solely from the documentation provided, but feel confident that they will be able to get their questions answered through direct contact with the project team. One correction that does need to be made to the documentation is in the natural gas sections. "Sempra" should be replaced with "SDG&E" since SDG&E is the Sempra utility that provides the natural gas distribution service in addition to SoCalGas. In addition, SDG&E believes there is insufficient detail to know if the operating conditions of electric generation units such as must run units, minimum run time, ramp rates, etc, are properly included.

Agreement that the model is adequately documented is not agreement with the actual values used. SDG&E and SoCalGas question whether some of the assumptions used in a "business – as –usual" case are representative. SDG&E and SoCalGas support the process proposed at the workshop that work groups be formed to refine the data and improve the modeling.

E3 has requested that parties provide it additional data on Generation Ownership/Contract Assignments to LSE. SDG&E will provide this data to E3 directly.

The documentation states that the results are based on "load based" regulation. The documentation should explain the implications of this assumption – that potential GHG emissions reductions from an economic dispatch that considers GHG costs have not been included.

Lastly, the documentation should more clearly indicate the modeling in stage 1 is statewide only. The individual utility results related to GHG reductions and rate impacts from the modeling exercise have been clearly stated in the workshops to be part of phase 2.

Q7. Provide feedback, as desired or appropriate, on the structure and approach taken by E3 in its GHG Calculator spreadsheet tool.

Response: The strength in this approach is that E3 is attempting to model the GHG impact of taking specific actions. At present, the model is quite limited in the actions considered – replacing expired contracts with cleaner resources, and adding renewables and energy efficiency in the electricity sector and energy efficiency in the gas sector. For the electricity sector, consideration should be given to the development of combined heat and power (as indicated in the revised documentation) and reductions related to early contract terminations/plant closures as additional options.⁵ For the natural gas sector, given that the only change in GHG emissions comes from increased efficiency, equipment/appliance standards as well as building standards should be included under energy efficiency. The modeling could also consider some energy alternatives such as solar water heating and biomethane as part of the supply of GHG reductions in the natural gas sector. For both sectors, the impact of overall cost of GHG emissions reduction measures should be considered. As prices increase, there is an elasticity response in energy conservation and further energy efficiency measures may become cost effective.

These types of models are helpful in setting overall direction and estimating the rough magnitude of actions needed to reach a goal. However, this model will not accurately predict how each of these actions will develop over time, and therefore will not determine which of these actions is the most cost-effective. The model should be seen as a tool to predict general trends and impacts should certain actions be cost effective.

⁵ It should be noted that the GHG reduction of adding a renewable instead of natural gas generation is less than the reduction from replacing/repowering an aging coal plant with natural gas.

Q8. Provide feedback, as desired or appropriate, on the data sources used by E3 for its assumptions in its issue papers. If you prefer different assumptions or sources, provide appropriate citations and explain the reason for your preference.

Response: As far as supply side resources are concerned, SDG&E would note that the model is missing some resources. SDG&E is not able to determine at this time if the absence of these resources is having any meaningful impact on the analysis. SDG&E would note that the resources that are missing tend to be qualifying facilities (“QFs”) and smaller resources; however, many of these smaller resources are renewable resources. The omission of these smaller resources likely occurs because they are connected at lower voltages thus not included in the transmission data base that was used.

As stated previously, the entity specific results need to be qualified since E3 made it clear at the workshop that the results presented to date were to get the potential impacts for state wide actions and that additional work is needed to determine entity specific impacts. SDG&E and SoCalGas disagree with most of the assumptions used to derive the entity-specific results, and plan to provide inputs on this aspect in the work groups. Scenarios should be done in phase 2 to see the impacts on each of the modeled entities of achieving the same GHG intensity in 2020. The current modeling results in similar costs increases to all parties; however, an alternative would require those that are already paying higher costs for a lower GHG portfolio to bear a lower proportion of costs of GHG reduction in the future.

Q9. Are uncertainties inherent in the resource potential and cost estimates adequately identified? Does E3’s model provide enough flexibility to test alternative assumptions with respect to these uncertainties?

Response: Not yet. The results are currently based on one set of assumptions about costs. The model does appear to have the ability to test alternative assumptions.

Q10. Has the E3 model adequately accounted for the implications of increased reliance on preferred resources (renewables, efficiency) on system costs?

Response: As far as energy efficiency is concerned, it is important to understand the implications of achieving 100 percent of economic potential. In order to achieve this aggressive goal, it will require builders and utility customers, who may not view the expenditures as cost effective, to make energy efficiency investments. The role of building and equipment/appliance standards in the modeling should be clarified to be part of the energy efficiency aspect to meet these goals.

SDG&E does support the model's adding costs for integration and transmission as renewable power is increased. However these should be viewed as approximate ranges only. This model can not be used to determine what or how much of these costs will actually be incurred as renewable resources are increased.

Q11. Should E3's model, in Stage 2, attempt to model potential market transformation scenarios, in the form of cost decreases, new technologies, or behavioral changes? What might be an appropriate way to characterize such potential for market transformation?

Response: Scenarios are always informative. And this model is specifically designed to allow for the testing of multiple scenarios. However, the Commissions should recognize that the results for each scenario are a function of the inputs.

The Commissions should also use care in how scenarios are labeled and used. Specifically, the Commissions should use caution in developing any scenario as a "market transformation" case that assumes all renewables decrease in price over time. As we have seen to date, the costs of renewables have increased substantially since the implementation of the Renewable Portfolio Standard. The worldwide expansion of the demand for renewables has not brought the price down as predicted by the "learning-by-doing" models. Scenarios could include

“market transformation” of solar technologies, but the uncertainty of this scenario should be clearly articulated.

The Commissions need to recognize that the costs to implement different strategies will change over time. It is not possible to accurately determine at present what the most cost effective strategies will be five years from now. The Commissions should be willing to continue to modify their approach as new data becomes available.

Q12. What specific flexible GHG emission reduction mechanisms to mitigate the economic impacts of achieving the desired GHG emission reductions should be modeled in Stage 2?

Response: SDG&E and SoCalGas believe flexible compliance mechanisms such as a multi-year compliance periods and the use of offsets will be key to achieving the State’s objectives. This model is not currently developed to test mechanisms such as offsets. However, the model may be able to test the range of GHG that may be expected in years of low hydro electric generation and years with higher electric and gas loads due to weather. This data could be useful in determining an appropriate length for a multi-year compliance period.

Q13. What output metric or metrics should be utilized to evaluate the least cost way to meet a 2020 emission reduction target for the sector?

Response: As stated above, this model will not determine the most cost effective ways for the State to achieve its goals. It will only determine what the impact will be from specific actions included in the model based on the predefined cost of those actions.

SDG&E and SoCalGas would support including offsets in the modeling to include actions outside of the model as an option in the determination of the least cost way of meeting a 2020 emission reduction target. Also the model should be modified to include additional actions such as those described above.

III. CONCLUSION

For the reasons set forth herein, the Public Utilities Commission and the Energy Commission should adopt the modeling methodology and data sources in accordance with the above comments of SDG&E and SoCalGas.

Respectfully submitted this 4th day of January, 2008.

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CERTIFICATE OF SERVICE

I hereby certify that I have this day served a copy of the foregoing **COMMENTS OF SAN DIEGO GAS & ELECTRIC COMPANY (U 902 M) AND SOUTHERN CALIFORNIA GAS COMPANY (U 904 G) ON ADMINISTRATIVE LAW JUDGE'S RULING REQUESTING COMMENTS ON MODELING-RELATED ISSUES** on all parties identified in R.06-04-009 on the attached service list by U.S. mail and electronic mail, and by Federal Express to the assigned Commissioner(s) and Administrative Law Judge(s).

Dated at San Diego, California, this 4th day of January, 2008.

/s/ JOEL DELLOSA

Joel Dellosa

CALIFORNIA PUBLIC UTILITIES COMMISSION

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